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1. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for providing accelerated data storage and retrieval, said method steps comprising:
 - 5 receiving a data stream at an input data transmission rate which is greater than a data storage rate of a target storage device;
 - compressing the data stream at a compression ratio which provides a data compression rate that is greater than the data storage rate; and
 - storing the compressed data stream in the target storage device.

2. The program storage device of claim 1, wherein the compression ratio is at least equal to the ratio of the input data transmission rate to the data storage rate so as to provide continuous storage of the input data stream at the input data transmission rate.

15 3. The program storage device of claim 1, further including instructions for performing the steps of:

determining the input data transmission rate and the data compression rate;

comparing the input data transmission rate, the data compression rate and the data storage rate to determine if they are compatible; and

20 adjusting one or more parameters to obtain compatibility between the input data transmission rate, the data compression rate and the data storage rate, if they are determined to be incompatible.

4. The program storage device of claim 3, wherein the instructions for performing the adjusting step include instructions for performing one of adjusting the input data transmission rate, adjusting the compression ratio and a combination thereof.

5 5. The program storage device of claim 4, wherein the instructions for performing the adjusting step further include instructions for temporarily buffering one of the input data stream, the compressed data stream, and a combination thereof.

6. The program storage device of claim 1, further including
10 instructions for performing the steps of:
retrieving the compressed data stream from the target storage device at a
rate equal to a data access rate of the target storage device; and
decompressing the compressed data at a decompression ratio to provide an
output data stream having an output transmission rate which is greater than the data
15 access rate of the target storage device.

7. The program storage device of claim 6, wherein the decompression
ratio is equal to the ratio of the data access rate to the input data transmission rate so as to
obtain an output data transmission rate which is equal to the input data transmission rate.

8. The program storage device of claim 6, wherein the decompression
ratio is equal to or greater than the ratio of the data access rate to a maximum accepted
output data transmission rate so as to provide a continuous and optimal data output
transmission rate.

9. The program storage device of claim 6, further including instructions for performing the steps of:

determining the data retrieval rate and the data decompression rate;

comparing the data retrieval rate, the data decompression rate and the

10 output data transmission rate to determine if they are compatible; and

adjusting one or more parameters to obtain compatibility between the data retrieval rate, the data decompression rate and the output data transmission rate if they are determined to be incompatible.

15 10. The program storage device of claim 9, wherein the instructions for performing the adjusting step include instructions for performing one of adjusting the data retrieval rate, adjusting the decompression ratio, and a combination thereof.

11. The program storage device of claim 9, wherein the instructions for

20 performing the adjusting step include instructions for temporarily buffering one of the retrieved data stream, the decompressed data stream, and a combination thereof.

12. The program storage device of claim 6, wherein the input data

stream and the compressed data stream retrieved from the target storage device comprise one of a single data block and a plurality of data blocks.

13. The program storage device of claim 12, wherein the instructions
5 for performing the compression step include instructions for performing the steps of:

(a) compressing an input data block with a plurality of encoders to provide
a set of encoded data blocks;

(b) determining a compression ratio for each of the encoded data blocks;

(c) comparing each compression ratio with an *a priori* specified
10 compression threshold;

(d) selecting for output an encoded data block in the set having the highest
compression ratio and appending a corresponding descriptor, if at least one of the
compression ratios exceeds the *a priori* specified compression threshold; and

(e) repeating steps (a) through (d) for each successive input data block.

14. The program storage device of claim 13, further including
instructions for selecting for output the input data block and appending a null descriptor
to the input data block is all of the compression ratios of the corresponding encoded data
blocks fall below the *a priori* compression limit

15. The program storage device of claim 13, wherein the instructions for the compressing step include instructions for simultaneously compressing the data block with a plurality of encoders in parallel.

5 16. The program storage device of claim 13 wherein the instructions for performing the compressing step include instructions for sequentially compressing the data block with the plurality of encoders.

10 17. The program storage device of claim 12, wherein the instructions for performing the decompressing step include instructions for performing the steps of:

- (a) extracting an encoding type descriptor from an input data block;
- (b) decompressing the data block in accordance with a decoder corresponding to the extracted descriptor; and
- (c) repeating steps (a) and (b) for each successive input data block.

15 18. The program storage device of claim 17, further including instructions for outputting the input data block if the extracted descriptor is a null descriptor.

Claims 19-47 are cancel.